

THE
AGRICULTURAL LEDGER.

1898—No. 10.

SILK.

(MULBERRY.)

*(DICTIONARY OF ECONOMIC PRODUCTS, Vol. VI., Pt. III.
S. 1892.)*

SALE OF RAW SILK FOR THE KASHMIR DARBAR.

*Official Papers including Memoranda on the Sale by SIR GEORGE BIRDWOOD, K.C.I.E.,
opinions of SIR THOMAS WARDLE, K.T., and other experts consulted, etc.*



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(Entomological Series, No. 2.)

THE
AGRICULTURAL LEDGER.

1898—No. 10.

—+—
SILK.

(MULBERRY.)

(*Dictionary of Economic Products, Vol. VI., Pt. III., S. 1822.*)

SALE OF RAW SILK FOR THE KASHMIR DARBAR.

*Official Papers including Memoranda on the Sale by SIR GEORGE BIRDWOOD, K.C.I.E.,
opinions of SIR THOMAS WARDLE, K.T., and other experts consulted, etc.*

The following papers on the subject of the sale of Kashmir silk in London afford information which it seems likely may be of interest to those engaged in the silk trade. They are accordingly published for information. The two Memoranda prepared by Sir George Birdwood, K.C.I.E., will be found to contain full details of the sales as well as the opinions of the brokers, merchants, manufacturers and special experts who were consulted. It will be observed that in his second Memorandum Sir George Birdwood expresses the opinion that given perfect reeling the prospect of Kashmir silk being sold at a profit in Europe is decidedly hopeful.

**Memorandum on sale of raw Silk for the Kashmir Darbar,
24th February 1896.**

In July 1895, Mr. Walter Roper Lawrence, C.I.E., I.O.S., brought, on behalf of the Kashmir Darbar, some samples of raw mulberry silk to this office for valuation, in the London market. Mr. [now Sir] Thomas Wardle, of Leek, to whom the samples were referred by the Secretary of State in Council, reported most favourably on them, and his report was forwarded to the Government of India for transmission to the Kashmir Darbar, on the 5th of December

INTRODUC-
TORY.

KASHMIR
SILK.

Sir George
Birdwood's
Memoranda.

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**SILK :
Mulberry.****KASHMIR
SILK.**

Sir George
Birdwood's
Memorandum.

Conf. pp. 5,
6.

Sale of raw Silk

1895. Mr. Wardle had in his report strongly advised that the stock of raw silk retained by the Darbar, pending the results of Mr. Wardle's examination of the samples drawn from it, should be shipped direct to London, and sold here, instead of being disposed of in the Calcutta market; and Mr. Lawrence, concurring in this advice, the Government of India were asked by telegraph on the 23rd of October 1895, to inform the Kashmir Darbar that it was desirable that the silk should at once be sent to London. On the 29th of November last Mr. R. Mukerji, the Director of Sericulture, Kashmir, wrote to me (see Appendix A) that, under the orders of the Darbar, sixteen cases of raw silk had been addressed to me for sale in London. These cases I duly received on the 28th of January this year, and four of them were at once opened, and samples drawn from each, and sent to various brokers, merchants, and manufacturers, including Mr. Thomas Wardle, who had undertaken to distribute samples of the silk beyond the range of possible purchasers commanded by myself. The sixteen cases contained silk of three qualities, in the following proportions:—

No. 1 quality	. . . . .	9 bales.
No. 2 "	. . . . .	3 "
No. 3 "	. . . . .	4 "

The tenders received were as follows:—

Tender 1.

Messrs. Henckell, Du Boisson & Co., 18, Laurence Pountney Lane, London, E.C., offered for the whole consignment, for—

	s.	d.
No. 1 quality	12	9 per pound.
No. 2 "	10	9 "
No. 3 "	10	9 "

Tender 2.

Messrs. William Milner & Sons, Leek, offered for the whole of—
No. 1 quality 12s. 6d. per pound.

Tender 3.

Messrs. Worthington & Co., Leek, offered for the whole of—
No. 3 quality 10s. per pound.

No offer for No. 2 quality other than that of Messrs. Henckell, Du Boisson & Co., was received.

The above three tenders were discussed at an informal meeting at the India Office on the 24th of February last, between Sir Charles S. 1822.

for the Kashmir Darbar.

Bernard, K.G.I., Mr. Lawrence, Mr. Ross, the Technical Assistant in the Revenue and Statistics Department here, and myself, when, for the seasons set forth in Mr. Lawrence's minute (Appendix B), the tender of the Messrs. Henckell and Du Boisson was accepted.

The following table shows the valuations put on the consignment under its three qualities, by four experts, and the three firms who tendered for it, in whole or in portions :—

	No. 1 Quality.	No. 2 Quality.	No. 3 Quality.	REMARKS.
<i>Experts—</i>	<i>Per lb.</i>	<i>Per lb.</i>	<i>Per lb.</i>	
1. Mr. Wardle	10s. 6d.	10s.	8s. 9d.	
2. Another silk manufacturer	10s. 3d.	9s.	8s. 6d.	
3. A silk merchant	9s.	8s. 3d.	7s. 6d.	
4. A Maclefield expert	11s.	10s.—11s.	10s.	
<i>Tenders—</i>				
1. Messrs. Worthington & Co.	—	—	10s.	The firm paying all dock charges.
2. Messrs. Milner & Co.	12s. 6d.	—	—	
3. Messrs. Henckell, Du Boisson & Co.	12s. 9d.	10s. 9d.	10s. 9d.	

It will be seen that Messrs. Henckell, Du Boisson & Co. not only made the highest tender for the whole consignment, but that they offered also to defray all the dock charges, which really raised their tender to 12s., 11s. and 11s. for the three qualities, respectively. There can be no doubt, therefore, of the soundness, in every respect, of the acceptance of their tender.

From annexed statement of the sale account (Appendix C), it will be seen that the total sum realised for the silk was 1,244l. for 2,143 lb. the average price on the stock being about 11s. 7½d.* per lb. It will be noticed from the statement that the deduction for damaged silk as determined by "the dock examination and weightment," amounted to 8lb (see Appendix); that 2lb were used up as samples; and that Mr. Wardle received 16lb of No. 1, 21½lb of No. 2, and 12lb of No. 3, or 49½lb altogether, on condition that he prepared therewith effective samples of woven silks for the approaching exhibitions of silks and cabinet furniture at the Bethnal Green Museum (under the direction of the Lords of the Committee of Council on Education) and of Indian products at

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Sir George
Birdwood's
memoran-
dum.

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* Equal to Rs-15-1
per lb at an exchange
of 12. 9d. per rupee.

**SILK:
Mulberry.****Sale of raw silk****KASHMIR
SILK.****Mr George
Birdwood's
Memorandum.**

Earl's Court. It was decided between Mr. Lawrence and me to make no charge for these 49½ lb. as we considered that the Kashmir State would be best repaid by the excellent advertisement which the Bethnal Green and Earl's Court exhibitions would give the silk.

Mr. Wardle had to pay a sum of 2l. 2s. for one of his expert examinations and valuations of five samples of the silk; and this sum should be deducted from the total purchase money, viz. 1,241l. leaving 1,241l. 18s. to be remitted by the Accountant General to the Government of India, for transmission to the Kashmir Darbar.

In addition to Mr. Wardle's valuable and detailed report of the 14th October 1895, a copy of which was sent to India last December, and a duplicate of which is hereto attached (Appendix E), three other brief reports on the silk have been received (Appendix F), namely, from Mr. Whittles, of Leek, and two separate anonymous clients of Messrs. Henckell, Du Boisson & Co. These four reports all speak most hopefully of the prospects of the raw mulberry silk of Kashmir in the markets of Europe, and call for the earnest attention of the Darbar.

I may add that I was constantly in personal discussion with all sorts of persons interested in this experimental consignment, and that so far as I can judge, there seems to me to be a unanimous opinion among English silk brokers, merchants, and silk manufacturers, throwers, dyers, and weavers, of the excellent quality of Kashmir raw mulberry silk, and of the high prices sure to be paid for it if carefully reeled, and imported, under its various denominations, of uniform quality. No doubt seems to be entertained of its competing successfully with the best Italian denominations of raw mulberry silk.

The 13th April 1896.

GEORGE BIRDWOOD.

From Sir J. A. Godley, Under-Secretary of State for India, to Thomas Wardle, Esq., dated 7th May 1896.

In continuation of my letter of the 4th of December last, and in acknowledgment of the receipt of Messrs. Gloues's bill for 2l. 2s. I am directed by the Secretary of State for India in Council to thank you for the valuable advice and assistance given by you in connection with the sale of the consignment of Kashmir raw mulberry silk recently received from the Darbar of that Native Indian State; and to

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*Conf. p. 10,
et seq.*

*Conf. pp. 26,
27.*

for the Kashmir Darbar.

SILK :
Mulberry.

Inform you that the Accountant General at this Office has been instructed to forward to you a draft for *21. 25.* in discharge of Messrs. Clowes's account with you.

KASHMIR
SILK.

APPENDICES.

Appendices.

APPENDIX A.

From R. Mukerji, Esq., Director of Agriculture, Kashmir, to Sir George Birdwood, K.C.I.E., No. 55 B, dated 29th November 1893.

I have the honour to state that, under order of the Jammu and Kashmir State Council, I have forwarded to your address, through Messrs. King, King & Co., of Bombay, 16 tin-lined boxes of silk thread for sale.

The enclosed list gives all the necessary information about the silk in the boxes.

ENCLOSURE IN ABOVE.

Quality and Quantity of Raw Silk consigned to Sir George Birdwood, K.C.I.E., the India Office, Whitehall, London, S. W., through Messrs. King, King & Co., Bombay.

Invoice of
raw silk.

QUALITY.	No. of boxes.	QUANTITY.					Insured value.	REMARKS.
		No. of skeins.	Weight.					
			Mound.	Seer.	Chittack.	Tolas.	Rs. d. p.	
No. 1	1	2,127	2	37	14	3½	1,507 9 3	At Rs. 15 per seer.
"	2	1,611	2	1	15	3½	1,049 7 3	
"	3	1,710	2	7	8	0½	1,189 11 9	
"	7	1,800	1	12	14	0½	1,347 0 0	
"	8	1,319	2	2	4	1	1,055 8 11	
"	9	1,000	1	12	12	1½	1,319 3 6	
"	10	800	1	0	14	3½	1,018 13 6	
"	11	1,003	1	10	0	2½	1,210 12 6	
"	12	1,358	2	37	2	4	1,099 8 0	
TOTAL	Nine	12,177	15	14	6	1½	15,610 11 3	
CARRIED OVER								

**SILK :
Mulberry.****Sale of raw Silk****KASHMIR
SILK.**
Invoiced of
raw silk.*Quality and quantity of Raw Silk consigned to Sir George Birdwood,
K.C.I.E., the India Office, Whitehall, London, S. W., through
Messrs. King, King & Co., Bombay—continued.*

Quality.	No. of boxes.	QUANTITY.				Invoiced value.	Remarks.	
		No. of chains.	Weight.					
			Maand. Beer. Chittack. Tolas.			Rs. & p.		
Brought forward	...	...	...	...	...	...
No. 2	4	2,070	2	24	11	12	2,512 13 9	At 11s. per lb.
"	15	1,300	1	30	8	1	8,560 4 9	
"	16	1,005	1	13	15	1	1,704 12 9	
Total	Three	4,375	5	57	2	34	5,499 15 3	
No. 3	5	1,130	1	30	11	44	1,814 14 0	At 11s. per lb.
"	6	1,000	1	13	1	34	1,048 8 0	
"	13	1,305	1	20	4	12	1,385 6 0	
"	14	519	...	27	11	2	554 4 0	
Total	Four	3,954	5	9	13	14	4,191 10 0	
Grand Total.	Sixteen	10,475	21	12	6	4	15,307 4 6	

APPENDIX B.**Mr. Law-
rence's
minutes.**

By the kind invitation of Sir George Birdwood I attended at the India Office to-day. The question of the prices offered for the Kashmir silk was discussed in the presence of Sir Charles Bernard, Sir George Birdwood, Mr. Ross, and myself.

The prices offered by Messrs. Henckell, Du Boisson & Co. are higher than those offered by Messrs. Milner & Sons. By Sir George Birdwood's calculation,—

	Quality.		
	1	2	3
Messrs. Henckell, Du Boisson & Co. offer for	13	11	11
Messrs. Milner & Sons	12-3	...	9-9

for the Kashmir Darbar.

SILK :
Mulberry.

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SILK.

Mr. Law-
rence's
minutes.

From the price point of view it is to the advantage of the Kashmir State to accept the offer of Messrs. Henckell, Du Boisson & Co.

The only doubt which arises is whether it would be in the interests of the future of Kashmir silk to sell direct to manufacturers like Messrs. Milner & Co. The object of the Kashmir State is to advertise the fact that good silk can be produced in Kashmir. I think that *merchants* like Henckell, Du Boisson & Co., are just as likely to push and advertise the Kashmir silk as manufacturers such as Milner & Co. I also raised the question whether Henckell and Du Boisson, in the interests of their Bengal silk business, were trying to get the Kashmir silk into their hands in order (a) to extinguish a rival industry, (b) to force it into the trade channel of Calcutta. Sir George Birdwood who knows the firm well reassures me on these points, and he feels sure that Henckell & Co. are *bond fide* purchasers who hope to make a handsome profit out of their purchase, and who will, in the ordinary way of business, make Kashmir silk known to the trade.

I therefore representing Kashmir as *amicus curiae*, think it would be wise to accept the offer of Messrs. Henckell, Du Boisson & Co.

WALTER R. LAWRENCE.

The 24th February 1896.

APPENDIX C.

Statement of Sale Account, 16 Bales Kashmir Silk.

Sale account.

Bales, No. 1 quality, net weight 1,258 lb. —									
		lb.	oz.				£	s.	d.
Messrs. Henckell & Co.	.	1,234	0	at 12s. 6d.			786	18	3
Messrs. Milner & Co.	.	5	0	at 12s. 6d.			3	2	6
Mr. Wardle	.	16	0						
Deduct damaged	.	2	0						
" samples	.	0	10						
TOTAL	.	1,258	0						
									790 0 9
Bales, No. 2 quality, net weight 464 lb. —									
		lb.	oz.				£	s.	d.
Messrs. Henckell & Co.	.	440	0	at 10s. 9d.			236	10	0
Mr. Wardle	.	21	8						
Deduct damaged	.	2	0						
" samples	.	0	8						
TOTAL	.	464	0						
									236 10 0
Carried forward	.								
									1,026 10 9

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The Agricultural

SILK :
Mulberry.

Sale of raw silk

KASHMIR
SILK.

APPENDIX C.

Sale account.

Statement of Sale Account, 16 Bales Kashmir Silk—contd.

		Brought forward	£	s.	d.	£	s.	d.
4	Bales, No. 3 quality, net weight 421 lb —	394 0	212	18	0	1,026	10	3
	Messrs. Henckell & Co.	394 0 at 10s. 6d.						
	Messrs. Whittles & Co.	5 0 at 10s.	2	10	0			
	Messrs. Worthington & Co.	5 0 at 8s. 3d.	2	1	3			
	Mr. Wardle	12 0						
	Deduct damaged	4 0						
	" samples	1 0						
	TOTAL	421 0				212	9	3
						1,244	0	0

APPENDIX D.

From Messrs. Henckell, Du Boisson & Co., to Sir G. O. M. Birdwood, K.C.I.E., etc., dated 4th March 1898.

We thank you for your favours of the 29th ultimo. We enclose herewith dock weight account, showing net weight . 2,063 lb—

	lb	oz.	
Sorting account showing	29	12	stained.
" " "	9	0	damaged and cut.
In all	38	12	unsound.
On which the allowance is assessed at			8d
Net weight to be paid for			2,055 lb

The damage has been assessed in the customary way, that is, no allowance is made in the price, but a deduction is made from the weight.

We annex account of the silk, including the samples received from you, showing total value, 1,236l. 6s. 3d., against which we have already paid you 850l. and we now enclose cheque for 386l. 6s. 3d. in settlement of the balance.

Further testings give the range of No. 1 quality as 11 to 17 deniers, No. 2, 14 to 20 deniers, and No. 3, 18 to 37 deniers. Evidently much more supervision of the reeling is required.

S. 1882.

for the Kashmir Darbar.				SILK : Mulberry.	
ENCLOSURE 1 IN ABOVE.				KASHMIR SILK.	
Account of 16 Cases Kashmir Silk.				Sale account.	
	B	B		L	s. d.
1 Bales, No. 1 quality, net weight	1,235				
Deduct for damage	2				
	1,233	at 12s. 9d. per lb		786	0 9
3 Bales, No. 2 quality, net weight	441				
Deduct for damage	2				
	439	at 10s. 9d. per lb		215	19 3
4 Bales, No. 3 quality, net weight	387				
Deduct for damage	4				
	383	at 10s. 9d. per lb		205	17 3
Add samples—					
4th February, No. 1, 1 lb 6 ozs. at 12s. 9d.				0	17 6
No. 2/3, 2 lb at 10s. 9d.				1	1 6
12th February, No. 3, 10 lb at 13s.				6	10 0
				61,236	6 3

ENCLOSURE 2 IN ABOVE.

Messrs. Henckell, Du Boisson & Co.

London and India Docks Joint Committee.

Copy of Damage Account, 2nd March 1896.

16 Bales Kashmir Raw Silk, Land Carriage, February 1896.

No.	B	ozs.		No.	B	ozs.	
1 {	1	13	Stained.	4 {	3	4	Stained.
	1	8	Cuts.		3	0	Damaged.
2 {	2	0	Stained.		0	8	Cuts.
3 {	...		Sound.	15 {	...		Sound.
7 {	...		Do.	16 {	1	4	Stained.
8 {	...		Do.	5 {	7	8	Do.
9 {	...		Do.		6	4	Do.
10 {	...		Do.		2	12	Damaged.
11 {	...		Do.		6	0	Stained.
12 {	...		Do.	13 {	1	4	Cuts.
				14 {	2	0	Stained.

J. ROMBELLS, Foreman.

J. BUDD, Warehouse Keeper.

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Mulberry.

Sale of raw Silk

KASHMIR
SILK.

Re-weight
account.

ENCLOSURE 3 IN ABOVE.

London and India Docks Joint Committee.

Re-weight Account, 29th February 1896.

16 Bales Kashmir Silk, Henckell, Du Boisson & Co., 29th February
1896, Land Carriage, 27th February 1896.

No.	Weight.			Tare, etc.	Net B.
	Cwt.	qrs.	lb.	2 oz. draft.	
1	1	3	4	8 5	195
2	1	2	3	12 ...	165
3	1	2	14	12 ...	177
7	1	0	1	8 ...	168
8	1	2	3	12 ...	166
9	0	3	27	8 ...	166
10	0	3	2	0 3	83
11	0	3	21	8 5	100
12	1	1	0	12 ...	135
4	1	3	22	4 ...	213
15	1	1	7	12 ...	142
16	0	3	5	4 3	86
5	0	3	16	4 ...	97
6	0	3	26	3 5	105
13	1	1	5	4 ...	140
14	0	1	20	12 3	45

R. SWEENEY.

J. BUDD.

APPENDIX F.

Mr. (now Sir
Thomas
Wardle's
report.

Report on Kashmir Raw Silk by Mr. Thomas Wardle, F.R.S., President of the silk Association of Great Britain and Ireland—dated Leek, Staffordshire, the 11th October 1895.

I have carefully examined the samples of Kashmir silk on which you requested me to report in your letter of the 11th July. I have conducted the inquiry on the basis of my examinations of the various colonial silks on which I was requested to report in 1886 by the Royal Commission of the Colonial and Indian Exhibition. A reference to that report will be found useful for the purpose of comparison.

I have consulted several experts on whose judgment I can rely as to the commercial value of the samples from two points of view: one, that of merchants and silk brokers, the other of manufacturers. In addition, I give my own estimate of the value.

The merchants and silk brokers who supply the manufacturer of course require their profit, and naturally estimate the value at less than the manufacturer, who has to pay that profit. On this point, with particular reference to the problem of the successful development of sericulture in Kashmir, I will say a few words further on.

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for the Kashmir Darbar.

**SILK :
Mulberry.**

Cocoons.

**KASHMIR
SILK**

I have not had the advantage of examining the cocoons from which these samples of silk were obtained, but, judging from the latter, I am of opinion that the silk is not that of the *desi* (i. e., "country" *Bombyx fortunatus*) or the Madras worm (*Bombyx creal*) of Bengal, but probably of the mulberry worm (*Bombyx Mori*) of Europe, a univoltine species, presumably from one or more of the cultivated races of Italy, or France, or both; and as it is the species which yields the silk of commerce of France, Italy, China, and Japan, it is, I think, admirably suited to Kashmir, and on the whole superior to the abovementioned multivoltine species of Bengal.

Mr. (now Sir
Thomas)
Wardle's Report.

As no cocoons have been sent with the samples of raw silk and waste I have received for examination, I have not been able to give the particulars of the first six denominations in the following table, which is based on that I devised for my aforesaid Report on Silks at the Colonial and Indian Exhibition.

Samples examined.

The nine examples of Kashmir silk received are of the following states and qualities.

Two samples, Nos. 1 and 2, of silk waste accompany the seven hanks of raw silk. One is made up as the ordinary *chassum* of Bengal, the other as ordinary silk waste.

The seven samples of raw silk (Nos. 3 to 9) consist of—

- One skein of 1st quality white gum.
- " " " " yellow gum.
- " " 2nd " "
- " " 3rd " "
- " " 4th " "
- " skein from very poor cocoons.
- " " double cocoons.

The reelable thread of the cocoon is composed of two cylindrical fibres, each termed in France "brin." They are simultaneously secreted by the silkworm from orifices on each side of its head, and are termed in France "bave." They consist of a homogeneous substance termed fibroin; they are surrounded and cemented together by a substance resembling gelatine or gum, named in chemistry "sericin" or

SILK:
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ON
THE
REPORT OF
THE
LYONS
CONDITIONING
HOUSE.

silk gelatine, technically termed in England "gum," and in France *grés*. This gum constitutes about 25 to 33 per cent. of the total weight, and is easily dissolved and removed by boiling in soap solution, previous to the silk being dyed.

The statement on pages 13 and 14 gives all the leading particulars of my examination of the above nine examples in a tabular form.

Report of the Lyons Conditioning House.

I sent the samples to the Lyons Conditioning House, with a request that they would be so good as to give the Government of India an opinion on the silk, both as to its value and to its properties.

I enclose the conditioning notes, which show results which may be taken as closely approximate to my own conclusions. They have not reported on the values of the samples. However, the values I send may be regarded as accurate, as I have taken great pains to check them. Since I valued them the prices stated in my table may be safely placed about 5 to 10 per cent. higher, owing to a recent rise in the raw silk markets in England and France which, owing to a greatly increased demand, will probably be maintained for some time yet.

Tabular Statement.
Species Bombyx Mori, probably Uniolesina.

for the Kashmir Darbar.									
No.	Description.	First Quality Yellow.	Second Quality White.	Third quality.	Fourth quality.	From very poor Cocoons.	From Double Cocoons.	Worm.	Chrysalis. No.
1	Weight of cocoons . . .								
2	Dimensions of cocoon . . .								
3	Weight of bave reeled from cocoon.								
4	Length of bave reeled from cocoon.								
5	Mean percentage of silk reeled from cocoon.								
6	Mean percentage of waste or frison in the cocoon.								
7	Number of baves composing the raw silk thread, i.e., the number of cocoons used to produce the thread.								
8	Size in deniers in bank of 500 yards.	10 to 15 deniers.	10 to 15 deniers.	17 to 18 deniers.	20 deniers	Very variable.	Most variable.		
9	Mean diameter of bave or cocoon single fibre.	1/15 inch	1/15 inch	1/15 inch	1/15 inch	1/15 inch	1/15 inch		
10	Mean diameter of bave or cocoon double fibre.	1/15 inch	1/15 inch	1/15 inch	1/15 inch	1/15 inch	1/15 inch		

SILK:
Mulberry.

KASHMIR
SILK.

Report of
Lyons com-
missioning branch.

SILK:
Mulberry.KASHMIR
SILK.Report of
Lyons condi-
tioning house.

Sale of raw Silk

TABULAR STATEMENT.
Species Bombyx Mori, probably Unipoltime—continued.

No.	Description.	First quality Yellow.	First quality White.	Second quality.	Third quality.	Fourth quality.	From very poor Cocoons.	From Dupes Cocoons.	Prices.	Quantity No.
11	Mean tenacity or strength of the thread of raw silk.	30 drams	30 1/2 drams	33 drams	35 1/2 drams	44 drams	---	---	---	11
12	Mean elasticity or tension of the thread of raw silk.	4 inches	3 7/8 inches	5 1/8 inches	5 3/4 inches	5 3/4 inches	8 1/2 inches	---	---	12
13	Mean tenacity or strength of the brin.	3 drams	3 drams	3 drams	3 1/2 drams	4 1/2 drams	---	---	---	13
14	Mean elasticity or tension of the brin.	4 inches	3 7/8 inches	5 1/8 inches	5 3/4 inches	5 3/4 inches	---	---	---	14
15	Net weight of silk per lb. after removal of its gum.	13 or 7 drams.	13 or 13 drams.	13 or 13 drams.	11 or 14 drams.	11 or 11 drams.	---	---	---	15
16	Colour of raw silk in gum.	Yellow	White	Yellow	Yellow	Yellow	Yellow	Yellow	---	16
17	Merchant's and broker's valuation per lb.	90.	90.	82, 34, 10 1/2, 64.	77, 64.	77, 64.	64, 64.	---	17, 34, 10 1/2, 64.	17
18	A Lark manufacturer's skilled expert's valuation per lb.	80, 34.	100, 34.	90.	84, 64.	84.	64.	---	---	18
19	My valuation	107, 64.	117, 64.	101.	84, 64.	87, 64. to 90.	77, 64. to 84.	34, 64.	17, 64.	19
20	A skilled Macintosh expert's valuation per lb.	117.	121.	100. to 117.	100.	84. to 90.	77, 64. to 84.	---	17, 64.	20
21	Lyons conditioning house, also Macintosh expert's valuation, compare with No. 20.	107, 64.	117, 64.	100. to 117.	100.	84. to 90.	77, 64. to 84.	117, 64.	---	21

S. 1822.

SILK :
Mulberry.KANTON
SILK.Report of
Lyons condi-
tioning house.

Sale of raw silk

Décret du 25 juin 1856.

Condition Publique des Soies, Laines et Cotons.

Bureau de Titrage.

N° d'ordre, 1606.

Lyon, le 26 Septembre 1895.

Echantillon, 1^{re} quality, skein white.

Déposé par M. Association Anglaise.

Observations.					TITRE.	
					en grammes et centig.	en deniers.
					0'60	11'29
					0'60	11'29
					0'60	11'29
					0'60	11'29
					0'60	11'29
					0'60	11'29
					0'60	11'29
					0'65	12'24
					0'65	12'24
					0'65	12'24
Elasticité.	Ténacité.	Tors.	Filage.		0'65	12'24
					0'65	12'24
					0'65	12'24
					0'65	12'24
					0'70	13'15
					0'70	13'15
					0'70	13'15
20%	30 "				0'70	13'15
20	35					
21	40					
21	45					
22	50					
					10'25	192'25
Titre ordinaire sur 500 mètres					0'64	12'05
Poide conditionné					10'26	
Titre conditionné sur 500 mètres					0'641	12'07
Ancien titre sur 470 ^m {						11'47
						11'48
Droit de titrage, Fcs 2.						

S. 1822.

Lodge.

for the Honorable Doctor.

Décret du 25 juin 1896.

Condition Publique des Soies, Laines et Cotons.

Bureau de Titrage.

N° d'ordre. 1608.

Lyon, le 26 Septembre 1895.

Echantillon, 2nd quality, skein yellow.

Déposé par M, Association Anglaise.

W. & A. Miniberry

KATON

Report of
Lyon 1895
Skein Yellow

Observations.					TITRE.	
					en grammes et centig.	en deniers.
					0.75	14.12
					0.75	14.12
					0.80	15.06
					0.80	15.06
					0.80	15.06
					0.80	15.06
					0.85	16.00
					0.85	16.00
					0.85	16.00
					0.85	16.00
					0.90	16.94
					0.90	16.94
					0.90	16.94
					0.90	16.94
					0.90	16.94
					12.60	237.18
					0.84	15.81
					12.65	
					0.843	15.87
						15.05
						15.10

Titre ordinaire sur 500 mètres

Poids conditionné

Titre conditionné sur 500 mètres

Ancien titre sur 470m { ordinaire
conditionné

Droit de titrage, F^{rs}. 2.

S. 1822.

Report of
Lewins condi-
tioning house.

Décret du 25 juin 1856.
Condition Publique des Soies, Laines et Cotons.
Bureau de Tirage.

N° d'ordre, 1609. Lyon, le 26 Septembre 1895.
Echantillon, 3rd quality, skein yellow.
Déposé par M. Association Anglaise.

Observations.					TITRE.	
					en grammes et centig.	en deniers.
					1'00	18'43
					1'00	18'43
					1'05	18'77
					1'05	18'77
					1'05	18'77
					1'05	18'77
					1'05	18'77
					1'05	18'77
					1'10	18'71
					1'10	18'71
Elasticité.	Ténacité.	Tors.	Filage.		1'10	18'71
20%	75 G ^{mm}				1'10	18'71
21	80				1'10	18'71
22	85				1'10	18'71
22	90				1'15	21'45
23	95				1'15	21'45
Titre ordinaire sur 500 mètres					16'10	20'13
					1'073	20'20
					16'30	
					1'08	20'13
					Poids conditionné	
Titre conditionné sur 500 mètres						
Ancien titre sur 476 ^m { ordinaire						18'71
						18'71
conditionné						18'71
						18'71
Droit de titrage, F ^m 2.						

S. 1822.

SILK:
Mulberry.

KLASIKUM
1912

Report of Lyons penitentiary house

Lyon, le 16 Septembre 1895.

Echantillon, 4th quality, skein yellow.

Déposé par M. Association Anglaise.

Observations.				TITRE.	
				en grammes et centig.	en deniers.
				1'40	26'96
				1'40	26'96
				1'45	27'30
				1'45	27'30
				1'45	27'30
				1'50	28'24
				1'50	28'24
				1'55	29'19
				1'55	29'19
				1'55	29'19
				1'60	30'13
				1'60	30'13
				1'65	31'07
				1'65	31'07
				1'70	32'01
				1'70	32'01
				1'70	32'01
				26'40	497'10
Titre ordinaire sur 500 mètres				1'552	29'24
Poids conditionné				26'53	
Titre conditionné sur 500 mètres				1'56	29'37
Acier titre sur 456 ^m { ordinaire					27'83
{ conditionné					27'96
Droit de tirage, F ⁿ 2.					

S. 1822.

SILK :
Ministry.

Report of
Special Com-
missioners.

Sale of raw Silk

Décret du 25 Juin 1856.

Condition Publique des Soies, Laines et Cotons.

Bureau de Titrage.

N° d'ordre, 1612.

Lyon, le 26 Septembre 1855.

Echantillon, Silk, very poor cocoons.

Déposé par M, Association Anglaise.

Observations.					TITRE.	
					en grammes et centig.	en deniers.
					1'30	24 2
					1'70	27 14
					1'75	27 35
					1'75	27 35
					1'80	27 70
					1'80	27 70
					1'85	28 25
					1'95	28 77
					2'00	27 08
					2'00	27 46
Elasticité.	Ténacité.	Tors.	Filage.		2'05	27 60
19%	100Gmes				2'10	27 54
20	105				2'35	28 75
20	110				2'45	28 13
21	115				2'05	27 33
22	120				2'75	29 60
					2'85	27 70
					2'40	28 73
Titre ordinaire sur 300 mètres					2'20	27 40
Poids conditionné					2'75	
Titre conditionné sur 300 mètres					2'30	27 50
Ancien titre sur 476m {						27 43
						27 54
Droit de titrage, F. 2.						

S. 1822.

SILK:
Mulberry.

RACIQUIMOD

**Report of
LYONS re: sub-
jecting Lyons**

**Report of
LYONS re: sub-
jecting Lyons**

• Lyon, le 26 Septembre 1895.

**Report of
LYONS re: sub-
jecting Lyons**

**Report of
LYONS re: sub-
jecting Lyons**

S. 1822.

SILK:
Mulberry.

Sale of raw Silk

KASHMIR
SILK.

Mr. (now Sir)
Thomas
Wardle's
report.

Remarks.

The result of this examination convinces me that the silk of Kashmir is of as high a quality physically as any silk from any other part of the world, and that an important future is in store for Kashmir in a greatly extended sericultural output. Judging from these examples I am more than satisfied with the absolute suitability of Kashmir, in a climatic sense, for the production of silk of superior strength, roundness of fibre, and freedom from structural defects.

Improved Reeling.

If I may venture to mention a few necessary conditions and precautions, I would like to say that greater attention must be paid to the reeling of the cocoons. The samples point to the necessity for an improvement in the regularity of size in the structural condition of the multiple thread of raw silk by better reeling. This can easily be done by selecting the best form of tavelette, and more highly skilled cocoon sorters and reelers. The number of baves in each thread is too variable, the finer baves being at times reeled together instead of being reeled with coarser baves.

Healthy Surroundings.

The commercial value of the silk would be greatly enhanced by healthier conditions of production. Greater cleanness, greater size, greater regularity of fibre, and greater freedom from duvet would thereby be attained, and these must be recognised as first requirements of success. Healthy surroundings, and good ventilation in the breeding magnaneries are the predetermining conditions of such success, and therefore of imperative importance.

The quality, although respectively good in the various grades, is not equal to filature Cantons, filature Japans, or Italians.

Attention to all these points would soon render it unnecessary for Europe to depend so largely upon supplies from the further East.

Capital and Security of Contract.

I may be travelling outside my instructions, but I am constrained to add that, as British capital will be required to fully develop the silk-producing resources of Kashmir, two things are, in my opinion, necessary.

for the Kashmir Darbar.

SILK:
Mulberry,

First, that there should be absolute security of contract in Kashmir, and, second, that the Government should, in order to encourage the application of such capital, join in any attempt to produce silk on a large scale, providing some capital, and participating in the profit or in some equivalent way.

KASHMIR
SILK.
Mr. (now Sir
Thomas)
Wardle's
report.

Shipment direct.

I also feel sure that, if the silk could be shipped direct to London and there placed on the market through the brokers, avoiding Bombay and Calcutta altogether, the chances of profit would be materially enhanced. This more simple mode of transfer would greatly simplify matters, and would place the reeler much nearer to the consumer, and would reduce the number of profits before the silk gets into the consumer's hands, as is now unfortunately the case with our imports from Bengal, China, and Japan.

My visit to Bengal.

It may be remembered that in 1886, at the instance of Mr. (now Sir) Edward G. Buok, I visited India, and reported on Bengal sericulture. I enclose a copy of my report. The two principal causes which had led to a decline of sericulture there were bad reeling and an excessive mortality of the silkworms. I found that not less than 60 per cent. of the silkworms died of disease. I recommended the Government of India to send some competent person to France and Italy, and there to study at the Government sericultural laboratories of Montpellier and Padua all that related to the growth of the mulberry and the proper rearing of the silkworms. Sir E. G. Buok selected a young native, Mr. Nitya Gopal Mukerji, and sent him out as I had suggested. He was away about two years, and completed his studies by several months' most advantageous study in Monsieur Pasteur's laboratory in Paris of silkworm diseases and their prevention.

When Colonel Parry Nisbit was appointed to Kashmir he very kindly obtained for me a good deal of information about sericulture there, and I suggested that Mr. Mukerji, who had been installed in a sericultural laboratory at Berhampur, should be sent over to Kashmir and instal a laboratory there.

S. 1822.

Figured Brocade from Kashmir Silk.

This has, I believe, been done, because afterwards I received a letter from Mr. R. Mukarji, Director of Sericulture of Srinagar, Kashmir, informing me that he was sending some Kashmir silk for the Exhibition at Stafford House, London, in May 1894. I had the silk thrown, dyed, and woven for that Exhibition. The manufactured silk was a kind of furniture brocade, and attracted considerable attention. I had the honour of showing it to the Queen, who was very much interested with it. It was also seen by the Prince of Wales and most of the other members of the Royal family. The silk was woven by Messrs. Warner and Sons of Spitalfields and Braintree, who reported on it in a letter of which I enclose a copy See Appendix I.

I also send herewith for inspection the piece of this figured brocade, all of which, or, at least, half of it, I should like to have returned when done with, as it is the first specimen of Kashmir silk dyed and woven in England.

Messrs. Warner informed me they would be glad to take all the silk that could be sent from Kashmir for some time if their suggestions were carried out.

I thought it well to add the above to my report, which, if considered superfluous, will be taken as showing the intense interest I have taken for several years past in the founding of a sericultural industry in Kashmir for the European markets.

From Messrs. Warner and Sons, 2, Newgate Street, London, to Thomas Wardle, Esq.,—dated the 19th May 1894.

APPENDIX I.

We are glad to inform you that the Kashmir silk which we wove into a small piece of goods at our factory in Spitalfields seems to us to be the best we have ever seen from India; it is very strong, and very bright when dyed.

The sample was coarse in size, which might arise from having too many cocoons used in the reeling; but, if it could be obtained finer in size, its market price would be about equal to that of China silk, and it could then be brought in general use. Otherwise it would only be useful in certain fabrics, such as tapestry.

It gives us much pleasure to be able to report so favourably on a product of our Indian Empire.

for the Kashmir Darbar.

SILK:
Mulberry.

APPENDIX II.

From Walter E. Lawrence, Esq., 22, Moone Gardens, London, E. W., dated the
7th November 1894.

KASHMIR
SILK.
Remarks by
Mr. Lawrence.

I have the honour to acknowledge the receipt of your letter No. 1612, R. S., of yesterday. Mr. Wardle is correct in supposing that the silk is that of the *Bombyx Mori* of Europe, a univoltine species, and his general remarks are, for the most part, applicable to the condition of sericulture in Kashmir.

Practically, Kashmir is at present only working at one twenty-fourth of its full power. The valley is crowded with mulberry trees, but, owing to the difficulty of supervision, and to doubts as to the expediency of spending money on a scheme controlled by an amateur like myself, I have insisted on confining our efforts to a scheme which was self-supporting. Hence we did not attempt to introduce apparatus for improved reeling, nor have we spent money on "magnaneries." An Italian expert, Signor M. Bassi, now employed in wine making, accompanied me on inspections, and was of opinion that the erection of magnaneries was not necessary, and held that the ordinary Kashmir cottage, easily ventilated and easily warmed, was admirably suited to the rearing of silk worms.

If, however, improved reeling appliances and special magnaneries are introduced, they should only be introduced by European capital, and under the supervision of European experts. The Kashmir State could never control operations on the scale which they will quickly attain if capital were forthcoming. The important factor in the future of sericulture in Kashmir is the presence of a large number of Kashmiris known as *kirm-kash* or "worm destroyers," who thoroughly understand the business of rearing silkworms and who only required skilled supervision. The local agency is present, all that is required is capital and European experts.

The next point in Mr. Wardle's remarks refers to "capital and security of contract." Security of contract is no doubt necessary, but I would urge that the Government should not join in the business. I would suggest that the Kashmir State should be asked to lease the right of collecting mulberry leaves, and to lease sufficient ground for the purpose of erecting filatures, and, if need be, of magnaneries. The one objection which the Darbar has against European capital being introduced is that the capitalist would find fault with the legal institutions of the country and would seek the jurisdiction of the

S. 1822.

SILK:
Mulberry.

Sale of raw Silk

Kashmir
Silk.
Remarks by
Mr. Law-
rence.

Resident. If it were clearly stated that in all suits arising out of the business of sericulture the lessee would be subject to the jurisdiction of the Kashmir Courts, I believe that His Highness the Maharaja would consent.

I am strongly in favour of direct shipment. The Kashmir State will feel secure of fair treatment if its silk is sold under the "eyes" of the India Office, official or unofficial. It is somewhat nervous on this point, as an experiment in selling shawls in Paris some years ago was a signal failure. Another reason, perhaps fanciful, is that efforts have been made from time to time to bring Kashmir silk under the control of French houses.

I need not dwell on the importance of making some use of Kashmir's wealth of mulberry trees, nor on the advantages which would accrue to the labouring classes, to the peasants who regard sericulture as a cottage industry, and to the State. I should add that at present there are four Europeans carrying on business in Kashmir without hindrance and without friction.

APPENDIX F (1).

Manufacturer's
Reports.

From Thomas Whittle, Esq., M. E. W., Leek, Staffordshire, to Sir George Birdwood, K.C.I. E.,—dated the 11th March 1896.

Enclosed I beg to hand you cheque value £1. 10s. in payment of the 5th sample of raw silk sent to me by Mr. Thomas Wardle of this town. *It was the third quality I had, and I consider it very satisfactory. If reeled up to 30 and 40 deniers it would suit the Leek trade. The better qualities would suit if reeled from 16 up to 24 deniers.*

APPENDIX F (2).

Manufacturer's Reports on Samples, received from Messrs Henckels Du Boisson & Co., 11th February 1896.

FIRST REPORT.

"No. 1, yellow.—This we make nice bright silk with a good amount of bone or feel, a firm hard thread, but a little knobby.

"No. 2.—Not so good a colour as No. 1 nor so bright has similar feel, but is more lumpy and dirty.

"No. 3.—Equal to No. 1 in cleanness, but like No. 2 in colour and lack of brightness."

for the Kashmir Darbar.

SILK:
Mulberry.

"*White*.—The whiter skeins are as dirty as to a yellow, but not firm or boney. The brown skein very similar, perhaps the cleaner of the two.

"We think the yellow samples partake much of the nature of Italian silk, but if the knibs and dirt had been kept out it would have been much improved. The white is softer and we think scarcely equal in value. We should like, however, to test 20 or 30 lb before expressing a very definite opinion as to the value."

The firm that sent the above report asked us the price of the silk, and we answered "probably 14s. for No. 1. 13s. 6d. for No. 2, and 12s. for No. 3," and in reply they write as follows:—

"The prices you name seem to us *outside value*. We are very full of silk and don't care to try all three qualities, but if you will send us 10 lb of No. 3 we will test it."

KASHMIR
SILK.
Manufacturers' reports.

SECOND REPORT.

"*1st*.—The silk should be banded with either boiled silk or spun and the bands are too tight.

"*2nd*.—Generally it is not regular, *i.e.*, there are fine places in it, for instance, the sample yellow No. 1 ranges from 12 to 20 deniers, and No. 3 ranges from 16 to 24 deniers.

"*3rd*.—The strength is found good. The silk winds fairly well. In places it is soft and fluffy.

"The silk is such as should find a market here. It has more nerve than Bengal, but it is not so regular in size as Sindahs for instance. By this information you will be able to get at its value."

Memorandum on the sale in London of the second consignment of raw silk received from the Kashmir Darbar in June 1897.

Sir George Birdwood's memorandum.

In April last Captain J. L. Kaye, the Assistant Resident in Kashmir, wrote from Srinagar asking me to again assist the Darbar in selling in the London Market a consignment of raw silk of three qualities, five cases of the first quality, two of the second, and one of the third, weighing 832 lb 8 oz., and informing me that he had forwarded the cases to me through Messrs. King, King & Co. of Bombay. On the receipt of the consignment in June last, I decided to ask Messrs. Henckell, Du Boisson & Co. of Laurence

S. 1822.

SILK:
Malberry.

Sale of raw Silk

KASHMIR
SILK
Mr George
Birdwood's
memoran-
dum.

Pountney Lane, to make an offer for the whole of the silk, or, failing that, to state on what terms they would undertake to dispose of the consignment in the open market. I felt that this firm were in a position to obtain a far better price for the silk than it was possible for me to get through any other channel.

The firm were unable to make any offer for the silk themselves but stated that they would be pleased to dispose of it on behalf of the Kashmir Darbar at the highest price obtainable, and would do their best to get buyers who were most likely to help in the future development of the Kashmir silk industry. In acknowledging the receipt of the consignment Messrs. Henckell, Du Boleson reported "that the whole of the silk is in good condition, except a very trifling quantity which has been damaged, part of it by nails having been driven through the wood and tin into the silk and cutting it, the remainder of the damage being a few skeins that "had been stained before they were packed."

The five bales of No. 1 quality silk were sold in July at 100. 9d per lb, and Messrs. Henckell, Du Boleson remark on this:—

"We consider this a very fair price for the silk. It is perhaps slightly better made than last year's consignment, but still it varies from 13 to 21 deniers in size, and though the nature of the thread is excellent, its great irregularity in size prevents its being used in the highest class of goods."

In September the two cases of the second quality silk were sold at 100. per lb and in December the last case (third quality) was sold at 95. per lb.

The average price realized for the whole consignment was 100. 3d against an average of 115. 7d. last year. The higher price given for the previous consignment was, I am informed, due to the buyers having considered the silk better spun than it proved to be when worked up, and in consequence the buyers were to some extent losers.

From the annexed statement of account of Messrs. Henckell, Du Boleson & Co. it will be seen that the total net proceeds realised by the whole consignment of 835 lb 8 oz. of silk was £422 6s. 9d.

I am still of opinion that there is every hope of the Kashmir silk finding a profitable market in Europe, the one essential being perfect reeling.

The 16th December 1897.
S. 1822.

GEORGE BIRDWOOD.

for the Kashmir Darbar.

SILK:
Mulberry.

Account sales and net proceeds of Kashmir silk sold by order of Sir
George Birdwood, K.O.I.E., for account and risk of the Kashmir
Darbar.

KASHMIR
SILK.
Account
sales.

No. 1 1-4	5	Cans Kashmir silk			
" 2-8	2	" " "			
" 6	1	" " "			
	8	Cans.			
July 11 1897		Sold by private sale prompt 22nd October 1897	£	s.	d.
		5 bales weighing net 572½ @ 10s. 9d. per lb			
		Cash received 6th August	307	9	0
		Add—131 days' interest @ Bank of England rate due 15th December 1897			
					310 15 1
September 19. 1897		Sold by private sale prompt 15th December 1897			
		2 bales weighing net 176½ 12oz. @ 10s. per lb			
		Cash received 15th December 1897	88	7	6
					88 7 6
November 18. 1897		Sold by private sale prompt 29th November 1897			
		1 bale weighing net 83½ 16oz. at 9s. per lb			
		832-4 Cash received 29th December	37	11	6
		Add—16 days' interest @ Bank of England rate due 16th December 1897			
					37 12 9
					436 15 1
		* 5½ inferior quality taken out of this lot and included in No. III quality.			

Charges.

July 1	Dock charges	4	12	8	
	Keel	0	16	4	
	Keeling	1	7	0	
	Interest on charges	0	2	4	
	Petty expenses and postages	0	5	0	
	Fibre insurance	0	15	0	
	Brokerage ½ per cent.	2	3	4	
	Commission 1 per cent.	4	0	8	
			14	8	4

Value 15th December 1895 422 6 9

E. E.

LONDON: } HENCKELL, DU BOISSON & CO.
The 15th December 1897. }

S. 1822,

All communications regarding THE AGRICULTURAL LEDGER should be addressed to the Editor, Dr. George Watt, Reporter on Economic Products to the Government of India, Calcutta.

The objects of this publication (as already stated) are to gradually develop and perfect our knowledge of Indian Agricultural and Economic questions. Contributions or corrections and additions will therefore be most welcome.

In order to preserve a necessary relation to the various Departments of Government, contributions will be classified and numbered under certain series. Thus, for example, papers on Veterinary subjects will be registered under the Veterinary Series; those on Forestry, in the Forest Series. Papers of more direct Agricultural or Industrial interest will be grouped according as the products dealt with belong to the Vegetable or Animal Kingdom. In a like manner, contributions on Mineral and Metallic subjects will be registered under the Mineral Series.

This sheet and the title-page may be removed when the subject-matter is filed in its proper place, according to the letter and number shown at the bottom of each page.

NOTICE.

Future issues of this publication placed under either the "Special Veterinary" or "Special Forest Series" will not be included in the annual enumeration. Such papers are printed for Departmental purposes. Their unfortunate inclusion in the system of annual numbering has led recipients of the ordinary issues to think their sets incomplete.

The following pamphlets have already appeared as Special issues, and have not accordingly been furnished to the public.

1894	.	.	.	Nos. 8, 9, 10, 11, 13 and 15.
1896	.	.	.	No. 8.

